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IDENTIFIERS Florists

ABSTRACT

Research was conducted to provide a model for selecting equipment for marketing and distributive education programs that was required for the development of the skills or competencies needed to perform in marketing and distribution occupation. A research of the literature identified both competency statements for three program areas--Fashion Marketing, Retail Floristry, and Food Distribution--and samples of equipment model development. (A 19-page annotated bibliography provides procedures, findings, and forms from five reports and studies.) Procedures and methodology used in the study were based on the components of the equipment model developed. Validated competency statements and task lists from the Interstate Distributive Education Curriculum Consortium materials and V-Tech catalogs were matched to equipment lists determined from input from industry and education. Business establishments and educational institutions (high schools, community colleges, and technical centers) were randomly selected for interviews and as respondents to a survey questionnaire. Equipment lists generated were organized into an order of priority based on respondents' perceived need for and usage of the item. (The survey instruments are appended.) (YLB)

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Final Report

Project No. 0-1C11

From 2-1-80 to 6-30-81

Systematic Model For Validating Equipment Uses in Selected Marketing and Distribution Education Programs

Florida Atlantic University
Boca Raton, Florida 33432

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The project reported herein was conducted pursuant to a grant from the Division of Vocational, Technical and Adult Education. Contractors undertaking such projects are encouraged to express freely their professional judgments in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent the official position or policy of the Florida State Department of Education.

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The Model that was created as a result of the research done for this project appears below. The final report that follows will supply the philosophy, rationale, and support documentation that aided in its development.

Components of the Equipment Model

	Input	Activity
1.0	Jobs for which students are being prepared.	Determination made by community survey or other manpower needs assessment.
2.0	Competency Statements (Appendix E).	Selection of skill competencies related to aforementioned jobs - IDECC provides computer printout of all job related competencies - selection of only skill competencies.
2.1	Validated Task lists generated by IDECC.	Used original Crawford Study based on task lists which had been validated by both employees and employers. Task lists are also the basis for training plans used to prepare workers.
2.2	Task lists generated by V-Techs.	Used in programs when available (for example, Code 4.05 Retail Floral Salesperson and Designer, 1979.
3.0	Validation of 2.0, 2.1, and 2.2. (Tasks)	Validation necessary if the lists are more than five (5) years old.
3.1	Validation by Industry Panel. Pages 29-32.	Validated by visits to 9 Florida businesses where Task and Equipment Lists were received.
3.2	Validation by Education Panel.	Validated by survey questionnaires sent to 38 educational institutions asking them to prioritize equipment lists in their specialized areas. (See Appendices A, B, and C.)
4.0	Matching Competencies/ Tasks with appropriate equipment	Panel of experts. Teacher/ Coordinator of Marketing and Distributive Education.

Input		Activity
4.1	Industry Input	Industry Panel determined equipment, criticality, and frequency of use. See industry validation of equipment lists, pages 29-32.
4.2	Teacher/Coordinator Input.	Panel of Coordinators made determination of suitability in laboratory, criticality, and frequency of use. See Equipment Lists Generated by Survey Respondents, Appendices A, B, and C.
5.0	Amalgamation of equipment lists as generated by industry-teacher coordinators.	See prioritized lists generated by interviews, questionnaires, and instructor suggestions from field situations. (Appendices A, B, and C.
5.1	Randomly selected respondents from industry and educators for final validation.	Used telephone interviews. See Telephone Interview Report Sheet and Task Analysis of Floral Shop Interview Form, Review of Literature Section, Appendices A, B, and C.
6.0	Final Equipment List.	See prioritized equipment lists, Appendices A, B, and C. Selection of equipment also depends on budget allocations.
7.0	Field Testing	The final portion of the project will be the field testing of the model, using three program areas with three selected jobs.
8.0	Field Tested and Validated Model.	To be assigned and continued in the future. On the basis of the field testing, any problem areas will be clarified and all kinks "shaken out."

CHAPTER I

INTRODUCTION

Marketing and Distributive Education is a program of occupational instruction which prepares persons for gainful employment and entrepreneurship in such diverse areas of economic activity as retail, wholesale, and service type businesses. Many educational components are necessary to complete occupational preparation for gainful employment in these businesses. One vital ingredient is equipment; equipment which is required for the development of the skills or competencies needed to perform in these businesses.

Vocational Education has a definite amount of funds with which to equip training programs. This project developed, validated, and field tested a model based on sound research to provide guidelines for equipment selection that would maximize the capital expenditure and be cost efficient.

There existed some guidelines for the types of equipment needed in some Marketing and Distribution specialized programs. Two Florida studies (Stubing, Taylor, and Rosenbaum, 1973, and Winters, 1974) set forth these guidelines. These studies were approximately six to seven years old. Both studies were based on Competency-based Pattern for Developing Distributive Teacher Education Programs by Crawford.

There is a need to provide a sound theoretical base for selecting equipment for specialized programs. Vocational Education decision makers must be provided with sound information on which to fund programs adequately. This research provided a model for efficient decision making based on a competency approach to occupational preparation, and in the process also developed a model for selecting equipment, validating the equipment list, and field testing the equipment list.

To accomplish the above task, the following objectives were addressed:

a. research of the literature to obtain competency statements for selected program areas; these areas were:

   Fashion Marketing
   Retail Floristry
   Food Distribution;

b. research of the literature for samples of equipment model development;

c. validate the equipment model; and

d. field test the equipment model.

The strategies used to meet the project objectives included:

a. development of a model based on competencies needed for employment in specialized programs. These competencies were derived from recent and valid task identification studies;

b. updating the Stubing, Taylor, Rosenbaum and Winter's studies and supplementing their identified competencies with additional competencies uncovered by the research of the literature;

c. conducting on-site visitations to at least three educational institutions having the specialized programs to determine the state-of-the-art in equipment utilization;

d. conducting on-site visitations to nine (9) businesses doing business in the specialized areas;

e. producing a comprehensive list of competencies and related equipment needs based on a, b, c, and d above;

f. convening a panel of experts from business, industry, and education to validate the equipment selections; and

g. field testing the model by surveying a randomly selected group of teacher-coordinators.

The study provides results which are directly applicable to the improvement of the teaching situation in Marketing and Distributive Education. Like other programs in Vocational Education, after many years of funding and program administration, Marketing and Distribution programs often operate without equipment lists or at best with incomplete lists. This has been the case historically even though the quality and effectiveness of vocational programs are directly related to the types and quality of equipment available.

This study provides a model or system for identifying equipment needed for three types of Marketing and Distribution programs, Fashion Marketing, Food Distribution, and Retail Floristry. A model can be defined as "an abstraction of the real world in an attempt to represent reality." (Walhaus, 1969).

The terms delivery system, system, model, etc., have a variety of connotations in education. The problem is that the terms do not always describe the product. They are used to describe different types of educational products ranging from plans of action, to a learning activity packet, to a teacher workshop.

The term "system" or "model" has only recently come into fairly wide usage, probably as a result of the United States space program. A "system" or "model" may be very simply defined as a vehicle to achieve an objective. In the space program, the Saturn V rocket was a system used to achieve the objective of placing a man on the moon.

A system also includes the technique used to accomplish an objective. In education, specifically, a system or model means using all the processes, materials, manpower, facilities, equipment, and controlling devices used to educate students. It would include the planning, research, curriculum, textbooks, worksheets, teaching methods, staff functions, administrative procedures, controls, counseling services, programs and an endless array

of components to achieve, what will be taught, how it will be taught, who will teach, and who will be taught. (Whinfield, 1976).

The system or model approach has two (2) main features. First, objectives are stated clearly in performance terms rather than in particular technologies. The advantage in specifying objectives in system terms is that it forces decision makers to so delineate the factors so that a rational comparison of alternative solutions is possible.

The second feature of the system or model approach is its emphasis on the interrelations within a system. The usual approach has been to divide a problem into more manageable subproblems. Since any one problem is so directly linked with others, it has to be reviewed in its entirety. In short, what a system's approach implies is comprehensive planning so that we can trace out the effects, progressive and regressive, of any set of choices and decisions upon all relevant decisions.

In order to design a system or model, Walhaus (1969) states that the purpose must first be identified. Once this is accomplished, systems or models are generally used in at least one of the following ways:

1. they may permit feasible and economical experimentation on real-world systems or models without increasing the cost, risks, and expenditures of time which may be required in actuality;

2. they allow us to formulate, communicate, and discuss hypothesis;

3. they bring about an understanding of the system's or model's variables and their relationships;

4. they make it possible to forecast and project for planning and decision making;

5. they allow for control of the time scale, real-world processes over long periods of time, modeling can allow long time intervals to be collapsed; and

6. they enable us to control and monitor real-world processes.

An important year for the design of educational systems or models was 1963. Silvern (1971) developed a general training system that was used to serve as a stepping-stone to more sophisticated training systems. Also, the Systems Analysis Committee of the Educational Media Council produced a plan to apply systems analysis techniques to education for long range planning purposes.

The increasing sophistication of systems design in education was assisted by full scale research efforts on the part of the American military. In 1964, an Air Force workshop produced "A Model for Designing Instructional Systems." Later, the Army produced a lengthy report titled, "The Design of Instructional Systems."

About the same time, Robert Smith (1966) produced a series of related articles dealing with the state-of-the-art within educational systems and model design.

Smith established the essential functions for an instructional systems or model as:

1. the development of training objectives based on the job for which students are being trained;

2. the practice of task performance until the student has attained the objective;

3. the practice of knowledges and skills which use components of the text;

4. the presentation of knowledge to the student;

5. controlling student activity so that it may be directed maximally to the task of learning; and

6. controlling the quality of training by means of a quality control system.

The popularization and subsequent use of systems and models in education clarified the advantage of the process. Kraft and Lolta (1969), defined the advantages as:

1. models provide a simplified abstraction of a complex real-world problem;

2. models provide a frame of reference for consideration of the problem;

3. models sometimes suggest information gaps which before were not immediately apparent;

4. models provide a "handle" to evaluate and study complex problems;

5. the construction or attempt to construct a model forces one to truly analyze as many of the real-world attributes as possible;

6. models provide a something which can be manipulated; and

7. models are the least expensive way to accomplish objectives.

The systems approach to education and the use of modeling is accepted as a valid and reliable tool within education. Systems modeling will become more and more popular in the management of education as the public requires ever increasing levels of accountability in education.

Equipment has often been a neglected item in Vocational Education, lacking the necessary planning update, repair, and replacement for achieving

and maintaining quality programs. This study emphasizes the need to plan for and"cost-out" the procurement, update, repair, and replacement of equipment used in vocational programs.

Studies done in other states relative to vocational equipment, often began with the tasks to be performed on the job, followed by the skills or competencies to be taught to perform the tasks and concluded with the equipment needed to develop the skills. This study followed a similar pattern using the IDECC System and the V-Tech Catalogs to identify tasks and equipment. Some models developed by other studies have been all inclusive, developing handbooks for specific grade levels (secondary), and including educational specifications, facilities, and equipment needs. Facilities are very important to equipment selection. The size and type of equipment needed should determine the nature of the facilities. Too often it is the other way around. Also, the teacher of the program is a very important input to the process of equipment selection. Only the teacher knows the curriculum objectives, the operations to be performed by the students, the work-flow, the safety hazzards, and the floor space requirements. Through equipment, students assume job roles in the learning process, therefore, equipment selection should depend on the needs, abilities, and specifications of the students being served.

The purchase of equipment involves major financial, technical, and educational decisions and should be made by persons who have a thorough knowledge of the program's objectives. Handicapped students are an additional consideration nowadays and equipment selection should reflect their physical and mental capabilities.

CHAPTER II

REVIEW OF RELATED LITERATURE

A research of the literature related to the project was made. Every effort was made to focus on the subject of equipment for vocational programs. Various approaches to the problem of equipment for vocational programs are evident in the literature. Some efforts are directed at producing complete catalogs for separate vocational programs which include lists of job tasks to be performed, the skills or competencies required, and the equipment needed to teach the skills. These catalogs can be used at the actual teaching level; they are not just planning documents.

Another approach is to graphically construct an occupational matrix which correlates jobs, skills, and equipment. The result is basically a planning tool.

One study placed great emphasis on facilities planning with the long-range objective of purchasing those types of equipment that best fit into the facilities available. It was emphasized that teachers should play a major role in the selection and purchase of vocational equipment.

All studies relied heavily on business and industry to validate proposed equipment lists. Industry evaluated both the jobs to be performed and the equipment needed. It was not unusual for the results of the industry contacts to add or subtract from the job lists on the surveys, because of more advanced technologies in present use.

Adelman, Frank W. and Walker, Turlene, State of the Art Tool and Die Maker Project. University Park, Pennsylvania, Pennsylvania State University, Division of Occupational and Vocational Studies, 1978. ED-163191.

Introduction:

This study was conducted for the purpose of developing a catalog of tasks and criterion referenced performance objectives required for tool and die makers. A research of the literature was performed on AIM/ARM, ERIC, etc., industry, state departments of education, directors of vocational education, directors of community colleges, and area voc-tech-centers. The research provided for the development of a list of task performance statements, and a list of tools and equipment needed for the training of tool and die makers.

The objectives of the study were:

1. to conduct a state-of-the-art study for the job title, "Tool and Die Maker;"

2. to develop an inventory of job tasks based on the state-of-the-art study;

3. to sample working tool and die makers and obtain their reaction to the inventory of job tasks; and

4. to construct a list of equipment used by tool and die makers.

The study was made possible by a grant given for the purpose of developing a catalog of performance objectives and criterion for the training of tool and die makers. The study was one way of addressing the need for improving vocational education planning. Also included in the study is a definition of terms.

Methodology

The steps and procedures used to complete the study included:

1. a search of ERIC materials;

2. a computer search using general descriptions;

3. a CITE search using description terms developed by ERIC;

4. a RVE search involving a computer search of the Resources in Vocational Education;

5. an AIM/ARM search of Abstracts of Instructional Materials;

6. a review of the literature on tool and die making;

7. letters of inquiry to state departments of education;
8. letters of inquiry to industrial establishments;
9. letters of inquiry to Directors of Vocational Education;
10. letters of inquiry to the United States Air Force;
11. telephone surveys of community colleges;
12. telephone surveys of area voc-tech-centers; and
13. visits to industrial plants and establishments.

Ashton, Dudley, Dance Facilities, Revised 1979.

American Alliance for Health, Physical Education, Recreation and Dance, 1979. ED 178538.

Although this report did not fall under vocational education, it did provide a checklist of basic assumptions that can apply to vocational education laboratories. These include:

1. equipment in the learning facility must be of sufficient quality and quantity to provide for all learning activities;
2. the selection of equipment must provide for the best student performance and maximum observation by the instructor;
3. the equipment must be able to be operated by men, women, and by handicapped persons;
4. teachers and administrators must be involved in equipment planning;
5. present and future needs must be considered in equipment selection;
6. calculations of cost must include original procurement, ongoing maintenance, and eventual replacement; and
7. equipment selected must be designed so that maximum and easy supervision of student operations is possible.

Legacy, James and Others, Competency Based Curriculum for Agricultural Occupations Programs - Phase I, Developing an Occupational Matrix and Completing A Job Title Purposive Study. Carbondale, Illinois, Southern Illinois University, 1978, ED 160820.

This report is the first phase of a three phase study to develop, adopt and implement competency based curriculum for Illinois agricultural occupations at the secondary level. The first phase developed an occupational matrix. It also tested task analysis validation procedures (purposive study) for one job title, area, retail florist. A list of job titles, business titles and business area titles, was compiled by a search of the literature and with the advice of advisory committees. The lists were validated through telephone interviews with business persons in the retail floral industry. There were significant differences between the preinterview responses and the data obtained from the telephone interviews. The study identified areas of training that were needed but were not being emphasized in the existing curriculum.

The objectives of the study were:

1. to develop a horticulture job title matrix;

2. to validate a list of tasks for one job title; and

3. to document the procedures which are used in implementing V-TEC's in vocational education programs.

The study's contribution to vocational education included:

1. its uniqueness;

2. it met the need for this type of study;

3. it developed conclusions and results that are applicable; and

4. it will aid in curriculum development.

The project was sponsored to facilitate the development of competency based materials and to develop procedural models for conducting a purposive study and building an occupational matrix. The methods and steps for developing an occupational matrix and for conducting a purposive study, are also presented.

The study emphasized that vocational training must be relevant to the world of work and that persons teaching vocational courses must be aware of the changes taking place in industry. Therefore, for vocational education to remain effective, curriculum must be developed which is responsive to the changing needs of industry. This is best accomplished when curriculum development is done systematically.

Competency-based curriculum development must be based on the following principles:

1. establish a definite length to the program;

2. program content should be based on USOE'S occupational areas and the needed competencies;

3. completion of an occupational program should qualify the students for entry-level employment; and

4. job preparation should be based on the development of good work habits as the foundation for vocational curriculum development.

Occupational Matrix Development and Objectives:

An occupational matrix consists of a listing of job titles, business titles, and business area titles which comprise an industry. The occupational matrix objectives for the study were:

1. to list and identify the business areas within the Illinois horticulture industry;

2. to list and verify the business titles which exist within each business area of the industry;

3. to list and verify the job titles which exist in each business title and business area of the industry; and

4. to document the procedures used and construct an occupational matrix.

Objectives of the Purposive Study:

A purposive study is the process of validating a list of tasks for a specific geographic area. The purposive objectives for this study were:

1. to identify a task list for the business title, retail florist;

2. to validate the task list through a representative sample of Illinois retail florists;

3. to summarize the task statements in preparation for developing competency-based learning materials; and

4. to document the procedures used to perform the purposive study.

The procedure recommended by the study for developing an occupational matrix consisted of two steps:

1. Develop a functional schematic of the necessary activities of the project. The schematic helps to anticipate project needs and to assign responsibilities.

2. Use Program Education and Review Techniques (PERT) to assign time deadlines of specific activities.

Other recommendations include limiting the scope of the matrix, reviewing previous studies and using the Dictionary of Occupational Titles (DOT) for business titles. It is also suggested that the state employment service be contacted for standard industrial classification, (SIC) to obtain the codes for the business titles listed. State level offices can provide the total number of businesses and employees by county and SIC code. Business titles by business areas should also be coordinated with advisory committees. A telephone interview list of business, large and small, should be developed.

In this study, managers of businesses were contacted by phone and asked what job titles were used in their businesses and how many workers held these titles. On the recommendation of the business community, seasonal adjustments were made. The researchers asked which job title required high school graduates, which did not require previous experience, and which required high school vocational training. Job titles were ranked as to entry level, first advancement, skilled, and/or managerial titles.

A purposive study can be conducted using a basic methods, mailed questionnaires and research interviews. This study used 16 research interviewers. The researchers used the study's functional schematic and a PERT chart.

Procedures Used:

1. Task lists - developed from a study done by Ohio State University were divided into major areas of the florist business.

2. Interview forms were pretested to determine time and completeness of task list. Rather than attempt to determine the exact time for each task, a scale was developed entitled: performed daily, performed weekly, performed monthly, and performed yearly. A scale for rating the importance of tasks was entitled: performed by beginning employees, performed by advanced employees, performed by managers, performed by owner, and performed by manager/owner. The interview took from 45 minutes to two hours.

Results:

Completion of the study produced the following results:

1. more job titles than those on the state list of jobs were produced by the telephone interviews;

2. the interviews with business persons revealed that some job titles did not exist in the industry; and

3. the interviews also revealed the existence of types of businesses previously unknown.

Data obtained for the purposive study should include a task analysis that provides information on the amount of time that is spent doing each task, the importance of each task, and who performs each task. For the purpose of curriculum development, task statements should be ranked in order or importance. A suggested ranking is:

1. Essential tasks
2. Important tasks
3. Useful tasks
4. Tasks a beginner does not need to know

The essential and important task fall into those rankings should serve as a basis for required learning activities of a competency-based curriculum. Useful tasks should be included as optional learning activities.

The project also suggested that a clearer understanding of the industry is possible from this type of study. As an example, areas of weaknesses in the training of employees were revealed. Recommendations were as follows:

1. Construction and content of an occupational matrix should always be verified by a field test.
2. A competency-based vocational curriculum should be based on the results of a purposive study. The study should include personal interviews and telephone interviews for the purpose of deciding whether or not the training offered meets the needs of industry.
3. Tests and comparisons should be made to confirm all recommendations.

The Appendix of the Study included a list of job titles and telephone interview forms (only 5 questions). "Hello - this is _____ calling from Southern Illinois University, Carbondale. We are conducting a survey of the kind of jobs available in your business. Do you have time now to help us with this short questionnaire, or may we call back at a more convenient time? Our goal is to use this information to develop Horticulture Classes for Illinois high schools, for the purpose of training students in entry-level jobs in horticulture businesses.

(1) I'm going to read through a checklist of jobs found in your business. Tell me if you have these jobs. Then I will ask you if your new employees start in these jobs.

   a. Do you have a _____? How many work at this job?

   b. Which of these jobs could you fill with a high school graduate with no experience? For which of these jobs would you hire a high school graduate who had taken horticulture classes?

(2) How many people are employed at your busiest season? How many of these are full-time?

(3) (For a large firm) Can you give me the name of a smaller firm employing less than 10 people located in your area?

(4) Thank you for your cooperation.

(5) (For rescheduling) Thank you for your cooperation. When would it be convenient to call back? Whom shall I ask for? Thank you."

The following forms have proved very effective in doing industry surveys.

TELEPHONE INTERVIEW REPORT SHEET

Preliminary Information

Occupational Area_____ OE Code_____ Busy season emp._____

Business Cluster Area_____ Full-time emp._____

Business Size Category_____

Job Title Information

Job Titles	order	employ	Other Job Titles	order	employ

Notes: Rank order: #1 entry level

#2 first advancement

#3 skilled worker position

#4 management/owner position

All the letter (H) for positions which high school graduates of Voc Ed programs would enter

Occupational Matrix

(see next page)

OCCUPATIONAL MATRIX

Industry	Business Area	Business Type	Job Titles	All Tasks	Tasks Common to Business Type	Tasks Common to Business Areas	Tasks Common to Industry
	Veg., fruit & flower grower	Field grown vegetables	Owner/Operator, veg. grower, nursery-laborer, trimmer, sprayer, machine operator, etc.				
Horticulture		berries& orchards	farmer, berry grower, supervisor, farmworker, trimmer, etc.				

TASK ANALYSIS OF FLORAL SHOP

Interview Form

General Information

1. Name of Business _____

2. Address _____

3. Number of Employees:

	Full-Time	Part-Time	Seasonal
Design	_____	_____	_____
Sales	_____	_____	_____
Bookkeeping/Office	_____	_____	_____
Delivery/Maintenance	_____	_____	_____

4. Total number of employees hired in 1979 to fill vacated and/or new employment:

Design	_____
Sales	_____
Bookkeeping/Office	_____
Delivery/Maintenance	_____
Other Titles	_____

Optional

5. Range of Incomes of Employees

Design	_____
Sales	_____
Bookkeeping/Office	_____
Delivery/Maintenance	_____

North Dakota State Board for Vocational Education, Educational Specifications Handbook on Facilities and Instructional Equipment for North Dakota Secondary Schools Industrial Arts Programs. Final Report. North Dakota University, Grand Forks, Department of Industrial Technology, 1978. ED 162124

The purpose of this project was to develop a handbook for secondary school industrial arts programs, relative to educational specifications, facilities, and instructional equipment needs. The design of the project included a review of the literature for guidelines developed in other states, a review of state curriculum guides and master plans for industrial arts education, recommendations on industrial arts laboratory sizes and types, environmental considerations for industrial arts education laboratories and equipment. The report concludes that the major consideration to be used for equipment selection should be the equipment's potential for the educational development of students. The equipment should also perform a valid production function in industry, be safe, simple, and easy to operate and be of good quality. The report strongly recommends that equipment selection should precede layout plans for equipment arrangement, thereby providing sufficient space for the safe operation of each piece of equipment.

Change and innovation in industrial arts education has had an effect on the learning environment and the laboratory equipment needed for effective secondary programs. The handbook developed by the project is divided into five (5) sections: (1) educational planning, specifications, and definitions; (2) type, size, and relationships of laboratories; (3) general and environmental considerations for industrial arts education programs; (4) equipment recommendations for the technical clusters of graphic communications, manufacturing, construction, and energy power, and (5) selected industrial arts facility layout plans. The handbook also provides guidelines to be used by teachers and administrators when planning learning environments for industrial arts education, including basic suggestions for the planning of an industrial arts laboratory.

Findings and Analysis:

1. Instructors are the best qualified to arrange equipment in the laboratory so as to promote the best learning environment.

2. All effort should strive towards the most efficient arrangement of tools and equipment.

3. The goal of environmental design in the industrial arts laboratory is to provide the physical facilities that will support the envisioned and desired curricular programs and instructional actions.

It is important that curricular programs be conceptualized and articulated in a manner that will clearly identify: (1) the goals and philosophy guiding the programs; (2) the activities and behavior to be staged within the program and its facility; and (3) the procedures and sequences used for

arranging the learning activities and experiences.

Industrial Arts Learning Activities:

The report shows how facilities must provide for the education of industrial arts students. The major thrust of these students' learning must be through problem solving. The equipment and facilities must provide for this type of learning. Students must assume job roles in the learning process. The equipment and facilities must lend themselves to a flexible scheduling concept, embodying high and low rates of usage at different times of the day. To be comfortable with the changing technologies in industry, students must be taught to expect change and to adapt to new occupations throughout their working lives. Facilities must provide an environment that will make students aware of their future needs. Such awareness cannot be accomplished by a curriculum emphasizing only 1 or 2 technical subjects. Instead the curriculum and facilities must provide learning experiences in many elements of industry and technology. To implement this concept, the North Dakota Industrial Arts Curriculum Guide presents programs at three (3) different operational levels: (1) awareness (K-6); (2) career orientation and exploration (7-9), and (3) specialization (10-12). No special facilities are needed for grades K-6. Courses at the senior high school level are designed to promote unique interests, needs, and abilities of individual students rather than commonalities to all students. It must be decided whether instruction is to be general in nature, or in depth. On this decision hinges the selection of proper equipment and facilities. Always, decisions regarding course content, equipment, facilities, organization, and teaching methodologies should depend on the needs, abilities, and asperations of students being served.

Suggested Procedures for Planning New Facilities or for Remodeling Existing Facilities:

The planning should follow a rational and orderly process. It should culminate in written educational specifications. It should be presented in straight-forward, written language. If necessary, some information may be presented graphically using diagrams and tables. Educational specifications should include:

1. department goals and objectives;
2. number of students to be taught;
3. educational programs, including curriculum offerings, and activities of teaching/learning process;
4. size and types of laboratories;
5. spatial relationships desired within the various laboratories;
6. environmental utility factors desired, and
7. equipment and furniture needs.

Laboratories:

The purpose of industrial arts laboratories is to enhance the curriculum. This can be accomplished by giving the student the following types of learning experiences:

1. experiments on laboratory instruments and equipment;
2. construction projects for laboratory production;
3. assembly and disassembly of industrial tools and equipment;
4. design of projects for laboratory production, and
5. creation of projects for laboratory production.

It is also recommended that wherever possible, areas be established as independent study modules within the laboratories.

Laboratory Space Requirements:

There are at least three (3) major considerations that should be addressed when planning industrial arts space requirements. These considerations include:

1. classroom space;
2. laboratory space, and
3. auxiliary space.

Classroom space, either separate from or in conjunction with the Vocational Laboratory, is most necessary for quality teaching in industrial arts programs. Quality of instruction is compromised when students have to sit on the floor, or benches, or lounge around equipment during lectures or the showing of slides or films. Students should at least be provided with a separate area equipped with armchair desks, chalkboard, bookcases, etc. Classroom space also provides the instructor with an administrative area for the storage of records and learning materials and for the holding of conferences with students.

The laboratory, containing machinery and tools, should have sufficient space to fulfill the objectives of the program. This general requirement includes providing the proper spacing between all machinery and equipment needed to meet the educational objectives of the program. Future requirements of the program should also be given full consideration. Provisions should be made for expansion and upgrading of the program. Of major concern should be spacing requirements for proper safety in the operation of machinery and equipment. Design and space requirements in the laboratory should allow for the instructor to have all equipment and machinery in view at all times.

Auxiliary spaces for the storage of materials, tools, supplies, and dangerous substances, should be provided. The example set by providing spaces for these requirements is part of the learning process for the students as well as good shop management procedures for the instructor. Students must be taught by example that the security and accountability for valuable tools, materials, and substances is the responsibility of the shop manager. Space requirements to meet these kinds of responsibilities are essential.

The amount of space required in a laboratory depends on anticipated enrollment and the nature of the learning activities. A simple chart can be developed showing the following:

Subject	Sq. Ft./Student	No. of Students	Sq. Ft./Subject

Types and sizes of spaces included in a laboratory are not the only factors to be considered - however, shapes of spaces and their relation to each other are equally important. Work-flow, safety, and production are important considerations in trying to maximize efficiency in traffic patterns and the clustering of learning activities.

Because of the constant changes in education due to enrollment, curriculum, and teaching methodologies, the planning of laboratories should allow for flexibility and adaptability.

Utility Systems:

Utility systems should be thought of as integral parts of a laboratory, not an appendage. Utility systems include:

1. Lighting
2. Electrical power outlets
3. Water (hot and cold)
4. Exhaust systems
5. Power safety switches (panic buttons)
6. Restroom facilities
7. Security systems
8. Fire alarms and sprinkler systems
9. Entrance and exit systems

Allowing for increased capacity and new additions are also important considerations in laboratory planning.

Instructional Equipment:

Equipment recommendations should be prepared early in the program's planning stage. Space requirements for each type of equipment must be known. Hazardous equipment must be isolated or "pocketed." Tall equipment must not block instructor's visibility of any laboratory activities. Arrange equipment so that there is a minimum of student travel around the laboratory in going from one operation to another. Provide extra space where students will have to congregate for demonstrations, etc. Provide work surfaces (benches, tables) next to equipment.

The purchasing of equipment involves some major decisions. The person making these decisions should have a thorough knowledge of the program objectives, curriculum, and learning activities. Consideration should be given to the equipment's potential for the education of students as well as its production function, safety characteristics, durability, design, operation, versatility, accuracy, and ease of service and repair. With the advent of handicapped persons in vocational and industrial arts programs, the selection of equipment should also be interfaced with the students' physical and mental abilities.

Torge, Herman, A Study of Vocational Equipment Used In the Secondary Schools of Ohio, Ohio State Advisory Council for Vocational Education, Columbus, Ohio, 1979.
ED 171906

The quality of any vocational program is directly and positively related to the quality and timeliness of the equipment used in the program. When determining the quality of a program, five (5) questions can be asked:

1. How does the equipment used in the vocational program compare, in technical quality, with equipment used in business and industry?

2. Is the equipment in a proper state of repair so as to be useful?

3. At what rate is the equipment wearing out or becoming obsolete?

4. How are school boards, administrators, and staff dealing with the problems of replacement and additional needs?

5. What is the magnitude of the resources needed to replace, acquire, and maintain equipment?

This study surveyed 97 schools through a mail-out of survey questionnaires to each vocational program. From the respondents' returned questionnaires, lists were compiled for each program. These equipment lists contained the program title, the quantity needed of a given piece of equipment, costs, estimated year of needed replacement, estimated cost of replacement, estimated costs for maintenance, and estimated costs for miscellaneous equipment. The study concluded that more realistic attention should be given to equipment used in vocational programs and that a considerable amount of money is needed to correct existing equipment deficiencies.

A previous study by the OACVE (Ohio Advisory Council for Vocational Education) indicated that the most poorly funded component of funding formulas was that of materials, supplies, and equipment. This fact makes it difficult to teach skills needed on the job through the use of poorly maintained, obsolete or inadequate equipment. Poor equipment causes dissatisfaction on the part of students, teachers, and employers. As equipment becomes obsolete, it loses its training value. Attention must be given to its replacement and to maintaining the quality of the investment in this aspect of the vocational delivery system.

The design of the study was in four (4) phases:

Phase I - selection of an advisory committee, development of survey instruments (questionnaires), identifying a sample population, designing a computer program to process the data.

Phase II - acquainting influential people with the project, field testing of the survey instruments, reviewing returned questionnaires.

Phase III - production of a sample computer printout for review, comparison of data from returned questionnaires with actual school programs, editing and preparation of a final computer printout.

Phase IV - preparation of the final report.

Comments on the phases of the study:

Phase I - it was necessary to determine the availability of equipments lists for voc-ed programs. There were only 49 equipment lists available for 135 existing vocational programs. Of the lists available, most did not give the sources (vendors) for the equipment, and most did not give itemized costs of equipment. Inquiries to other states revealed that the same or similar conditions existed. The development of complete equipment lists is necessary before a study can proceed. To develop equipment lists as fast and easily as possible, programs were sampled and equipment needs shown in the samples were projected for the state on the basis of the sample data.

Phase II - The survey mailout package included:

1. a self-addres nvelope;
2. a cover letter explaining the project;
3. a questionnaire;
4. a set of directions for completing the questionnaire;
5. an equipment inventory form; and
6. a form for listing additional equipment needed.

A 50% response was obtained from the initial mailout of the questionnaire. a 58% response rate was finally achieved as a result of second and third mailouts and telephone follow-ups.

Phase III - Phase III was run concurrently with Phase II.

Findings and Conclusions:

The report gives difinitions of equipment for the purpose of the study. Basic equipment is defined as equipment necessary for establishing the program. Supplemental equipment is that for which purchase could be delayed and the program will still meet minimum standards. Additional equipment is defined as those pieces of equipment needed to complete program needs. Tables were presented showing maintenance costs climbing over a 10-year period,

replacement costs varying from year to year, additional costs varying but finally phasing out to zero, and total costs varying from year to year.

Questionnaire Findings:

Questionnaires were sent with the equipment inventory requests. Forty-eight percent had a planned program of equipment replacement and 52% did not. Fifty-eight percent had a replacement equipment budget and 42% did not. Sixty-eight percent had a maintenance budget and 32% did not. Twenty-three percent said adult training monies came to their programs and 77% did not. Forty-nine percent said the additional equipment usage because of adult training affected the life of the equipment and 51% said it did not.

Conclusions:

The report concludes that more realistic attention must be given to equipment used in Vocational Education Programs. Some equipment acquired during the major thrust on vocational education in the past 10 years now needs to be upgraded and replaced. "Adequate" equipment can mean that it is acceptable for a school situation, but not equal to that used in industry. Business programs reported that the use of equipment by adult classes, shortened the life of the equipment. It was also concluded that the levels of funding for vocational equipment must be sufficient to provide for maintenance, replacement, and supplemental equipment.

Recommendations:

The report contains the following recommendations:

1. Increased levels of funding for equipment maintenance, repair, and for supplemental equipment.

2. Establishment of planned schedules and budgets for maintenance of equipment.

3. Schools must maintain written "inventories" of vocational equipment.

4. District-wide vocational equipment inventory systems should be developed which are easy to originate, maintain, and update.

5. A cost-effectiveness study should be made of individual vocational programs to justify the investment in vocational equipment. Some programs cost more to initiate than others. Some are more costly to maintain than others. Included also should be a study of the cost-per-pupil graduated over a given period of time.

CHAPTER III

PROCEDURES AND METHODOLOGY

The procedures and methodology used to complete the study were based on the components of the equipment model as listed in the interim report. A review of the components of the equipment model and the activities relating to them is appropriate at this time:

Components of the Equipment Model

	Input	Activity
1.0	Jobs for which students are being prepared.	Determination made by community survey or other manpower needs assessment.
2.0	Competency Statements (Appendix E).	Selection of skill competencies related to aforementioned jobs - IDECC provides computer printout of all job related competencies - selection of only skill competencies.
2.1	Validated Task lists generated by IDECC.	Used original Crawford Study based on task lists which had been validated by both employees and employers. Task lists are also the basis for training plans used to prepare workers.
2.2	Task lists generated by V-Techs.	Used in programs when available (for example, Code 4.05 Retail Floral Salesperson and Designer, 1979.
3.0	Validation of 2.0, 2.1, and 2.2. (Tasks)	Validation necessary if the lists are more than five (5) years old.
3.1	Validation by Industry Panel. Pages 29-32.	Validated by visits to 9 Florida businesses where Task and Equipment Lists were received.
3.2	Validation by Education Panel.	Validated by survey questionnaires sent to 38 educational institutions asking them to prioritize equipment lists in their specialized areas. (See Appendices A, B, and C.)
4.0	Matching Competencies/ Tasks with appropriate equipment	Panel of experts. Teacher/ Coordinator of Marketing and Distributive Education.

Input		Activity
4.1	Industry Input	Industry Panel determined equipment, criticality, and frequency of use. See industry validation of equipment lists, pages 29-32.
4.2	Teacher/Coordinator Input.	Panel of Coordinators made determination of suitability in laboratory, criticality, and frequency of use. See Equipment Lists Generated by Survey Respondents, Appendices A, B, and C.
5.0	Amalgamation of equipment lists as generated by industry-teacher coordinators.	See prioritized lists generated by interviews, questionnaires, and instructor suggestions from field situations. (Appendices A, B, and C.
5.1	Randomly selected respondents from industry and educators for final validation.	Used telephone interviews. See Telephone Interview Report Sheet and Task Analysis of Floral Shop Interview Form, Review of Literature Section, Appendices A, B, and C.
6.0	Final Equipment List.	See prioritized equipment lists, Appendices A, B, and C. Selection of equipment also depends on budget allocations.
7.0	Field Testing	The final portion of the project will be the field testing of the model, using three program areas with three selected jobs.
8.0	Field Tested and Validated Model.	To be assigned and continued in the future. On the basis of the field testing, any problem areas will be clarified and all kinks "shaken out."

Three marketing specializations were chosen for the equipment model: Food Distribution, Fashion Marketing, and Retail Floristry. Each of these specializations are included in the Interstate Distributive Education Curriculum Consortium (IDECC) materials and the V-Tech catalogs. The IDECC materials and V-Tech catalogs contain competency statements and job task lists which have been previously validated and are the basis for these programs. The task lists have been validated by both industry and education panels prior to their being included in these materials. The use of the task lists and

their related competencies was therefore judged to be the most valid and practical approach for the development of the equipment lists.

The development of the equipment model for those specializations required the latest inputs from industry and education to establish the most current validity. For this purpose, business establishments and educational institutions were randomly selected for interviews and as respondents to a survey questionnaire (Appendices A, B, and C).

Interviews were conducted at three (3) prominent South Florida supermarket chain stores and two (2) convenience food stores for the validation of the Food Distribution Equipment Lists. Interviews were also conducted at one store of Florida's major department store chain, two ladies boutique, and one discount ladies apparel shop for the validation of the Fashion Marketing Equipment Lists. Finally, an interview was conducted at one retail floral shop of South Florida's largest floristry chain for the purpose of validating the Retail Floristry Equipment List.

Survey questionnaires were mailed to educators at 18 high schools, seven (7) community colleges, and five (5) Tech centers for validation of the Fashion Marketing Equipment Lists. Survey questionnaires were also mailed to three (3) high schools, one (1) community college, and one (1) Tech center for validation of the Food Distribution Equipment Lists. Finally, survey questionnaires were mailed to three (3) Tech centers for validation of the Retail Floristry Equipment Lists. Numerous questionnaires were returned with additional items of equipment included at the suggestion of the educators, and have been included in the model's final equipment listings.

Equipment lists generated by survey respondents have been organized into an order of priority based upon the respondents perceived need for and usage of the item (Appendices A, B, and C).

Some of the items added to the equipment lists by the educators are of a purely instructional nature and are not related to developing the skills on the job task lists. They are, however, important to the instructional program.

Based on the above procedures and methodology, it is believed that the three (3) equipment lists included in the model are the most current, authentic, and valid available to the planners and instructors in Marketing and Distribution.

Following are reports on the interviews conducted at the various business establishments:

Industry Validation of Equipment Lists

The grocery clerk equipment lists were validated in two phases. The first phase involved interviews and discussions with supermarket store managers, supermarket grocery managers, and supermarket grocery clerks. The second phase involved interviews and discussions with convenience store owners and managers.

Three supermarkets were visited. Each one belonged to a different supermarket chain in Florida. The supermarket chains visited are amongst Florida's largest, best equipped, and most successful. One chain is a model of efficiency and progressiveness in the handling and stocking of merchandise. Their goal is to provide merchandise at the store level in the correct quantities and varieties with the least amount of handling and sorting by store personnel. This is accomplished by packing merchandise onto "yellow-bird" hand-trucks at the warehouse and leaving the merchandise on the trucks until it is packed-out onto the grocery shelves in the store. The savings in time, equipment, and manpower are significant. The housekeeping functions of arranging displays, pricing, dusting, and filling up shelves have also been minimized. As a result, an examination of the tasks listed for a grocery clerk in the IDECC Training Plan, resulted in several tasks being identified as noncurrent and unnecessary. Therefore, grocery clerks in this particular chain perform their daily duties with less equipment.

The second supermarket visited also demonstrated some procedures resulting in greater efficiency. However, there was more handling of merchandise from warehouse to the store shelves and more equipment in use. Merchandise was unloaded off of trucks onto roller-bar conveyors and stacked in the stockroom. From the stockroom, merchandise is moved by hand-truck to the shelves in the store. Extra handling of the merchandise is more time-consuming and is accomplished with conventional types of equipment. Therefore, those tasks listed for a grocery clerk in the IDECC Training Plan are more nearly correct for this chain of grocery stores.

Finally, the visit to the third supermarket revealed less sophisticated procedures and the least specialized equipment. Merchandise is taken from the delivery trucks and brought into the store where it is unloaded and placed on the floor of the aisles in which it is displayed. Standardized equipment is used. Unpacking, price stamping and display tasks are performed. Merchandise is handled two to three times more often than in the other markets, with resulting inefficiencies. However, those tasks listed for a grocery clerk in the IDECC Training Plan are correct for this chain of grocery stores.

The equipment list developed from the visits to the supermarkets is a composite of that required in the most efficient store operation, to that required in the least efficient store operation as the grocery clerk performs his duties.

The second phase of the equipment list development for grocery clerks centered on visits to convenience stores. One store in a nationwide chain was visited and one store belonging to an independent owner was visited. The independent owner operates a total of nine stores.

From the outset, in both of these visits, it was made clear that at the convenience store level, nobody has the title of grocery clerk. Everyone who works in these types of stores performs any and all duties required. Some stores do employ part-time help to "stack shelves" and perform custodial duties. Most stores use anybody and everybody to do anything.

In the convenience store, merchandise is not found in the large quantities that characterize a supermarket. Hand-trucks are not as large or sturdy. A great deal of the merchandise is placed on the floor of the store by delivery men in front of the shelves from which it is sold. From there it is put directly on the shelves as soon as possible. Convenience stores do not have large storerooms or conveyor belts and other types of merchandised equipment. Merchandise is moved or carried by hand to its place of sale. A large percentage of the merchandise is not priced. Dusting of merchandise on display is not a big effort because the items move fast. Signing to indicate sales and special prices are at a very minimum because convenience store pricing objectives are different than those of supermarkets. Pricing and signing involves time and labor, and labor costs are held to a minimum in these stores. During the majority of the operating hours these stores are manned by one person, maybe two during rush hours.

An examination of the IDECC Training Plan drew the response that some of those tasks are performed in the convenience stores, but very little equipment is required. Therefore, there was very little input into the equipment lists as a result of these visits.

The salesperson and sales manager apparel and accessories equipment lists were validated during an interview with the manager of a department store apparel and accessories department. The department is located in one of the units of South Florida's major department store chain, located in a very large shopping center.

The competencies listed in the IDECC Training Plan were reviewed and the types of equipment needed to perform the tasks were recorded. With the exception of the display tasks in the Training Plan, it was agreed that the tasks were current and necessary for all operations. The manpower also had experience in small independent stores.

In a large store operation, display tasks are highly specialized and salespersons are almost never required to perform any display tasks requiring the use of equipment. A display area or location may be prepared by display technicians and then the merchandise in packed-out by salespersons, but there is no equipment required.

In a small store, salespersons may be required to "build displays" in which case the items indicated on the equipment list would be required.

Two other women's apparel stores were also visited, the first was one store of five in a local chain, the second was one store of many in a chain of stores throughout the East Coast of the United States. Operating procedures and equipment requirements were very similar. A review of IDECC Training Plan Tasks with the managers revealed much less emphasis on display tasks

for employees. Stores have specialized display services. Store employees are not responsible for creating displays of merchandise. Instead, the store is visited periodically by display specialists who construct displays that coincide with the current sales promotions. The display specialists may be employees of the company that owns the stores, or they may be employees of an independent display service.

The first shop, one of five in a chain, would be classified as a boutique selling to sizes 1-14. The merchandise included tops, jeans, swimsuits, and shorts. A limited line of accessories included combs, barrettes, boots, etc. Designer label merchandise was included in the line of merchandise sold. Merchandise policy is to sell the best merchandise at the lowest price. Very few discounts are offered. Sales promotions are supported by displays, radio and television advertising, and local newspaper ads. Except for display racks in the store, there is very little equipment used in the operation.

The second shop, part of a chain of stores located along the East Coast of the United States could be described as a ladies apparel discount store. Merchandise stocked included sizes 3-18. The line included tops, bottoms, slacks, dresses, swimsuits, T-shirts, and blazers. Designer label merchandise was sold at a discount. Merchandise arrives in cartons from the distribution center, priced and ready to go on the floor. Store employees put the merchandise on hangers and place it on the floor display racks. Merchandise is also removed from display racks, placed in cartons and returned to the distribution center when required. These stores are also provided with a display service throughout the month to coincide with the various sales promotions. Once again, other than the cash register and the display racks, there is very little equipment used in these stores.

The retail salesperson - Floristry equipment lists were validated during an interview with a salesperson and owner-manager of a retail floral shop. The shop is one of many belonging to the leading retail floristry chain in South Florida.

The initial reaction of the owner-manager was one of disbelief that public education would attempt to train salespersons for a retail floral shop. His objection was based on many years experience and what he called "the nature" of the floristry industry due to the perishability of its product. He said he would never have a salesperson who had not been trained in a floral shop, and that a school situation could not duplicate or simulate the environment of a floral shop. He believed that to do so would place the school into the floristry business to which he was strongly opposed. Following certain reassurances, he became very cooperative and offered his future support.

Even retail outlets in the same chain of floral stores do not all use identical types of equipment. There are many basic types of equipment used in all stores, but differences in local markets, the major thrust of the particular business, and the training, experience and preferences of personnel, causes a variety of equipment to be used.

The equipment listed in the V-Tech catalog for Retail Floristry was reviewed with the salesperson and owner-manager. There was general agreement that the list is very valid. Some recommended additions were also made based on the operation of a high/volume retail floral shop.

CHAPTER IV

FINDINGS

The study addressed the important need to establish a system or model that will help planners and instructors identify and procure the best and most needed equipment for training students in Marketing and Distribution vocational programs. The main question to be answered was: what equipment is needed to teach students how to perform a given job task? The question called for a justification of the job tasks as listed. Based on the interviews with industry, the survey of the educators, and the procedures followed in constructing the lists of job tasks in the IDECC system and the V-Tech catalogs, it can be concluded that the job tasks as listed are valid. It remained therefore, only to correlate the validated job tasks with needed equipment for acceptable vocational training.

The priorities and types of equipment used in the Food Distribution industry varied according to the overall sophistication of the business operation. The top chain used the latest equipment, but less of it because their total handling operations were reduced. The independently owned convenience stores used very little equipment because of the small quantities and the small size of the stores; therefore, there are differences in training equipments. Training for a grocery clerk has to vary between the function and use of large "yellow-bird" trucks stacked with large quantities of groceries, to the use of small hand-trucks stacked with only 3 or 4 items.

There is a difference in a salesperson's tasks to be performed in a large ladies apparel department in a large department store and those tasks to be performed in a small boutique or apparel discount store. As an example, display duties and the need for display equipment familiarization are practically nonexistent in certain large department stores. Display tasks are performed by display specialists who are not involved in selling and customer services. Whereas, in a small boutique or independent discount stores, sales personnel may need a knowledge of display techniques and display equipment. However, even in the small store, display requirements are sometimes met by subscribing to a display service, not connected with the store's organization.

The operation of retail floristry business is highly individualistic, even in a chain of stores belonging to the same company. Their clients or customers might be concentrated in the funeral business, residential neighborhoods, or hospitals. These specializations call for the use of different types of equipment. Delivery trucks are not in great demand in a neighborhood business, but they are in the hospital and funeral business. Job tasks and equipment requirements will vary greatly.

Generally speaking, industry representatives were favorably impressed with validity and realism of the IDECC and V-Tech job task lists and the equipment lists. They also expressed a sincere desire to provide further cooperation and support to the success of this project.

Educator responses to the survey questionnaires were detailed and informative. Their responses varied on the priorities given to specific items of equipment. They tended to give at least some priority to more items of equipment then industry did. Most teachers want at least one of everything, whereas industry has to consider the cost-effectiveness of an item.

Some community college instructors perceived their programs as strictly college degree programs not requiring "hands-on" activities involving the use of equipment. As a result, they returned the questionnaires unanswered. All Tech center instructors were deeply interested in the project and made detailed lists of additional equipment that they recommended.

The outstanding cooperation and conscientiousness of industry and the educators indicates that the development of this model is a very viable and constructive project.

CHAPTER V

SUMMARY AND CONCLUSIONS

Administrators, planners, and instructors involved in selecting and purchasing equipment for vocational programs must realize that the overall effectiveness of a vocational program is directly related to the quality and amount of equipment available. Procedures must be developed for the procurement of vocational equipment that will support the objectives of the vocational programs from the identity of job tasks to be learned to the required hands-on activities in the laboratories.

Funding policies must support initial procurement, ongoing maintenance, and eventual replacement of equipment. Prior to the expenditure of funds, studies should be made to insure that only the most economical, most practical, and most current equipment is purchased. The purchasing decision should be supported by advisory committees or other types of industry support as well as the support of program instructors.

The facilities to be made available for housing the equipment should be selected in advance and should be capable of meeting the utilities requirements, the space requirements, and the safety requirements for the most beneficial use of the equipment. The vocational instructor is recommended as the best source of information for the above requirements. The instructor knows the program objectives and how the equipment will be used to meet the objectives.

The types of equipment to be purchased should be determined by surveys of community businesses in which the students are training to be employed, and by surveys of instructors teaching the same or similar programs. Frequency of use, both in business and in the classroom, should be a major determinant in the purchasing decision. As an example, cashier check-out-electronic scanner systems should not be purchased just to teach the "latest state-of-the-art," if local supermarkets are not using those systems. The expense would be unwarranted, almost $80,000 per system. All businesses have characteristics or specializations which determine, among other things, the types of equipment used. Well designed and well managed surveys of local businesses and instructors should be the foundation upon which vocational equipment purchases are made.

The most important conclusion from the study is that there should be a master plan, based on valid research, incorporating a model similar to this study, for the purchase of vocational equipment. The objectives should be to obtain the most economical, the most practical, and the most current equipment to support the vocational programs.

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APPENDIX A

FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FLORIDA 33431
(305) 395-5100

COLLEGE OF EDUCATION
Department of Adult, Secondary, and Higher Education

MARKETING AND DISTRIBUTIVE EDUCATION

EQUIPMENT SURVEY

Name: _____

School: _____

Address: _____

Title of Specialized Program: _____

Below are itemized lists of equipment for your Specialized program. Using the following scale, please rate each piece.

3 Absolutely essential for carrying out program objectives

2 Important, but not essential for carrying out program objectives

1 Nice to have, but can do without in meeting program objectives

Fashion Marketing Equipment List

1.	2.7	telephone	20.	1.6	imprint machine
2.	2.29	counter	21.	2.2	merchandise
3.	1.8	clear plastic display fixtures	22.	1.2	billing machines
4.	2.3	hangers	23.	1.2	posting machines
5.	2.5	mannequins	24.	1.2	addressing machines
6.	1.9	hand-tools			
7.	1.3	hand-truck	25.	1.2	comptometers
8.	1.7	ladder	26.	1.2	microfilm readers
9.	2.2	cash register			
10.	2.1	cash drawer	27.	1.7	charge-card imprinters
11.	1.8	currency			
12.	2.3	calculator			
13.	2.5	fixtures			
14.	1.9	ticket gun	28.	1.3	valuables safe
15.	2.5	pen			
16.	2.0	fire extinguisher			
17.	1.6	tape spindles			
18.	1.1	nail file			
19.	2.5	stapler			

USE OTHER SIDE FOR ADDITIONAL COMMENTS OR SUGGESTIONS

FAU Fort Lauderdale Center
1515 West Commercial Blvd.
Fort Lauderdale, Florida 33309
(305) 776-1240

FAU West Palm Beach Center
2101 45th Street
West Palm Beach, Florida 33407
(305) 848-1429

FAU Belle Glade Extension
1185 South Main Street
Belle Glade, Florida 33430
(305) 996-3055

FAU Fort Pierce Extension
3209 Virginia Avenue
Fort Pierce, Florida 33450
(305) 464-2000

FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FLORIDA 33431
(305) 395-5100

COLLEGE OF EDUCATION
Department of Adult, Secondary, and Higher Education

MARKETING AND DISTRIBUTIVE EDUCATION

EQUIPMENT SURVEY

Name: _____

School: _____

Address: _____

Title of Specialized Program: _____

Below are itemized lists of equipment for your Specialized program. Using the following scale, please rate each piece.

3 Absolutely essential for carrying out program objectives

2 Important, but not essential for carrying out program objectives

1 Nice to have, bu. can do without in meeting program objectives

Food Distribution Equipment List

1.	1.6	"float" or hand cart
2.	1.2	un-cart
3.	1.7	box cutter
4.	2.0	stamper
5.	2.2	label gun
6.	1.3	baler
7.	1.6	feather duster
8.	1.6	water spray
9.	1.7	handi-wipes
10.	1.6	alcohol
11.	1.5	broom
12.	1.3	scrub machine
13.	1.3	mops
14.	1.3	buckets
15.	1.3	buffer
16.	1.6	brushes
17.	1.6	sponge
18.	1.0	wire brush
19.	1.3	4 wheeler
20.	1.0	ice picks
21.	1.6	super-scraper
22.	1.6	razor blade
23.	1.3	birds
24.	1.3	pallet
25.	1.3	steel conveyor
26.	2.0	grocery carts
27.	1.5	optical scanner

USE OTHER SIDE FOR ADDITIONAL COMMENTS OR SUGGESTIONS

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1185 South Main Street
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FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FLORIDA 33431
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COLLEGE OF EDUCATION
Department of Adult, Secondary, and Higher Education

MARKETING AND DISTRIBUTIVE EDUCATION

EQUIPMENT SURVEY

Name: _____

School: _____

Address: _____

Title of Specialized Program: _____

Below are itemized lists of equipment for your Specialized program. Using the following scale, please rate each piece.

3 Absolutely essential for carrying out program objectives

2 Important, but not essential for carrying out program objectives

1 Nice to have, but can do without in meeting program objectives

Retail Floral Equipment List

1.	1.6	box cutters	21.	2.3	ladder
2.	3.0	broom	22.	2.3	moisture meter
3.	2.6	cleaning brushes	23.	2.6	map
4.	3.0	buckets (for cut flowers)	24.	2.6	pliers, snub nosed
5.	2.3	chicken wire			
6.	2.0	credit card machine (imprinter)	25.	2.6	pliers, long nosed
7.	1.6	delivery truck			
8.	3.0	designing table	26.	2.6	pruning shears
9.	3.0	desks	27.	3.0	refrigerators
10.	2.6	display bins	28.	3.0	ribbon rack
11.	2.6	display case	29.	3.0	ribbon shears
12.	3.0	display shelves	30.	2.3	rose gloves
13.	3.0	dust pan	31.	2.5	rose stripper
14.	3.0	filing cabinets	32.	2.3	rubber stamps
15.	3.0	hammer	33.	2.0	saw
16.	2.6	hand tools	34.	3.0	scissors
17.	2.3	hand truck	35.	2.3	screwdriver
18.	2.6	heat gun	36.	2.3	sharpening stones
19.	3.0	hot glue gun	37.	3.0	sink
20.	3.0	knife	38.	2.6	sprayer, fungicide

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(over)

APPENDIX D

FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FLORIDA 33431
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COLLEGE OF EDUCATION
Department of Adult, Secondary, and Higher Education

MEMORANDUM

TO: Coordinator of Specialized Programs in Marketing and Distributive Education

FROM: Dr. Kate Gildan, Project Director

SUBJECT: Equipment List

DATE: January 9, 1981

I am writing this memo to you in the hope that you will take a few minutes (no more than 15) to fill out the enclosed questionnaire. Marketing and Distributive Education has been assigned the task of creating an acceptable Model for equipping vocational laboratories. We are using specialized Marketing labs to field test the Model. An essential component of this Model is to have a professionally recognized instructor, like yourself, evaluate the need for certain pieces of equipment in your program. The list of equipment was generated by researching instructional objectives and interviews with industry leaders.

I would appreciate your reviewing the enclosed equipment list within the framework of the needs of a practicing teacher. You will notice there is a section for you to respond independently of the proposed suggestions. Please use this section to list other pieces of equipment which are not included, but that you feel are essential for your program.

Enclosed is a stamped, self-addressed envelope for the completed questionnaire. Please be assured that your support and help is truly needed and a vital component of this study.

Enclosures

KG/rlg

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HUMAN RELATIONS

_____ 261: Knowledge of how to achieve results through others by practicing effective human relations (Hum. Rel., Lap 47).

_____ 262: Knowledge of factors which appear to affect employee morale (Hum. Rel., Lap 33).

_____ 263: Knowledge of how to dress appropriately for the job and maintain a well groomed appearance (Hum. Rel., Lap 3).

_____ 264: Knowledge of how to build morale in employees (Hum. Rel., Lap 38).

_____ 265: Knowledge of how to recognize the accomplishments of others (Hum. Rel., Lap 63).

_____ 266: Knowledge of how to develop and maintain a pleasant working environment (Hum. Rel., Lap 39).

_____ 267: Knowledge of how to be orderly and systematic (Hum. Rel., Lap 2).

_____ 268: Knowledge of how to show an interest in others (Hum. Rel., Lap 7).

_____ 269: Knowledge of how to build sound working relationships in "forced" associations (Hum. Rel., Lap 19).

_____ 270: Knowledge of how to motivate others for best performance (Hum. Rel., Lap 50).

_____ 271: Knowledge of the evidence of poor morale--high personnel turnover, numerous grievances, increased absenteeism and tardiness, and restriction of output (Hum. Rel., Lap 34).

_____ 272: Knowledge that morale is the term used to describe employee attitudes toward their jobs, employer, and fellow employees (Hum. Rel., Lap 16).

_____ 273: Knowledge that supervisors and managers accomplish results by encouraging employees to work toward mutually beneficial objectives (Hum. Rel., Lap 49).

_____ 274: Knowledge that a positive attitude is usually reflected in one's work (Hum. Rel., Lap 17).

_____ 275: Knowledge that a supervisor must help new employees adjust to their jobs, seeing that they are trained for the job and that they become acquainted with fellow employees (Hum. Rel., Lap 57).

_____ 276: Knowledge that human relations in the retail organization consists of an interdependence with fellow employees, supervisors, and customers (Hum. Rel., Lap 23).

HUMAN RELATIONS

_____ 277: Knowledge that personnel usually understand and comply more readily with policies they have helped develop (Hum.Rel., Lap 42).

_____ 278: Knowledge that employees will comply more readily with policies they understand (Hum. Rel., Lap 41).

_____ 280: Knowledge of the ways to effectively handle difficult customers (Hum. Rel., Lap 28).

_____ 281: Skill in developing and maintaining harmonious relationships with others (Hum. Rel., Lap 21).

_____ 282: Knowledge of methods used in sponsoring new employees in the department or store (Hum. Rel., Lap 58).

_____ 283: Skill in working cooperatively with others and being aware of their needs and motivations (Hum. Rel., Lap 22).

_____ 284: Skill in maintaining an objective point of view (Hum. Rel., Lap 12).

_____ 285: Skill in maintaining good health for effective job performance (Hum. Rel., Lap 4).

_____ 286: Skill in developing traits necessary for successful job performance (Hum. Rel., Lap 6).

_____ 287: Skill in representing a business favorably to customers and outside business associates (Hum. Rel., Lap 30).

_____ 288: Skill in adapting to the personality and needs of a customer (Hum. Rel., Lap 29).

_____ 289: Knowledge of how to avoid misrepresentation of policies, products and people (Hum. Rel., Lap 24).

_____ 290: Skill in selecting the right person to do a job (Hum. Rel., Lap 55).

_____ 291: Knowledge of how to interview employees regarding corrections and grievances (Hum. Rel., Lap 43).

_____ 293: Knowledge of how to train employees and follow up on the effectiveness of training (Hum. Rel., Lap 59).

_____ 294: Skill in exercising self-control in trying situations (Hum. Rel., Lap 11).

_____ 295: Skill in accepting criticism and turning it into a character-building element (Hum. Rel., Lap 13).